

# **SECTION F**

## **PROJECT LEVEL ANALYSIS**

### **CHAPTER 10**

#### **CARBON MONOXIDE AND PM-10 HOT-SPOT ANALYSIS**

##### **MEETING HOT-SPOT CRITERIA FOR CONFORMITY PURPOSES**

##### **ANALYSIS YEARS USED IN PROJECT LEVEL HOT-SPOT ANALYSIS**

##### **EPA-APPROVED MODELS FOR CO PROJECT LEVEL ANALYSIS**

##### **ALTERNATIVES TO MEETING LEVEL OF SERVICE (LOS) D, E, AND F MODELING REQUIREMENTS PURSUANT TO THE TRANSPORTATION CONFORMITY RULE**

##### **QUESTIONS AND ANSWERS**

##### **Exhibit**

Exhibit 42:      Conformity Evaluation Procedure for Intersection Projects  
                         (Puget Sound Regional Council)

## SECTION F

### PROJECT LEVEL ANALYSIS

#### CHAPTER 10

#### CARBON MONOXIDE AND PM-10 HOT-SPOT ANALYSIS

This Chapter provides additional information on how project level hot-spot analysis is performed with particular emphasis on modeling and analysis of projects located within CO nonattainment and maintenance areas. While the previous section presented a general overview of *why* conformity is required in CO nonattainment and maintenance areas, this Chapter will show the reader *how* some of these requirements are being met by project sponsors. Since EPA has yet to publish guidance or methodologies on quantitative PM-10 hot-spot requirements, this chapter will not present these requirements until such guidance has been officially published by EPA. Until such guidance is published in the Federal Register, qualitative PM-10 hot spot findings are required in PM-10 areas. Questions and answers are provided at the end of this Chapter to reinforce some of the key technical issues related to project level hot-spot analysis within CO nonattainment and maintenance areas.

#### MEETING HOT-SPOT CRITERIA FOR CONFORMITY PURPOSES

EPA clarified in the preamble to the November 1993 transportation conformity rule that the requirement to demonstrate that projects eliminate or reduce the severity and number of localized CO violations in CO nonattainment areas applies only within the project's area. That is, it must be demonstrated that a project eliminates or reduces CO violations at sites within the area substantially affected by the project. These sites must be identified through the interagency consultation process. If there are no localized CO violations, and if there would not be any violations within the project area, the project satisfies this criteria.<sup>1</sup> EPA intended that the hot-spot analysis compare CO concentrations with and without the project based on modeling of conditions in the analysis year. The hot-spot analysis is intended to assess possible violations due to the project in combination with changes in the background levels over time.

The two scenarios and the requirements under each follow:

- 1) If there are no projected exceedances or violations in the area affected by the project, then the project's future effect is compared to the standard since the test is whether the project causes a new violation (i.e., the project's effect causes an exceedance of the standard); or,
- 2) If there is a projected violation or exceedance in the area affected by the project, the project cannot worsen an existing violation, so a no-build/build comparison is required.

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<sup>1</sup> 40 CFR, 58 FR 62212, Nov. 24 1993.

In the preamble section of the transportation conformity rule, a few commenters suggested that flexibility be provided to allow projects to violate the NAAQS for CO in areas not frequented by the public if the project improves air quality and eliminates violations where public exposure is more likely. EPA did not include this in the final rule, since the CAA requires that transportation projects do not cause or contribute to any new violation of any standard in *any area*, or increase the frequency or severity of any existing violation of any standard in *any area*. EPA asserted that it is not public exposure to a violation of a standard that the CAA prohibits, it prohibits any violation of any standard in *any area*. EPA concluded that the transportation conformity rule cannot override the CAA to make exceptions that create new or worsen existing violations.<sup>2</sup>

*40 CFR §93.116, as amended by 62 FR 43810, August 15, 1997*

*Criteria and procedures: Localized CO and PM-10 violations (hot spots).*

*(a) This paragraph applies at all times. The FHA/FTA project must not cause or contribute to any new localized CO or PM-10 violations or increase the frequency or severity of any existing CO or PM-10 violations in CO and PM-10 nonattainment and maintenance areas. This criteria is satisfied if it is demonstrated that no new local violations will be created and the severity or number of existing violations will not be increased as a result of the project. The demonstration must be performed according to the consultation requirements of §93.105(c)(1)(i) and the methodology requirements of §93.123.*

*(b) This paragraph applies for CO nonattainment areas as described in §93.109(d)(1). Each FHWA/FTA project must eliminate or reduce the severity and number of localized CO violations in the area substantially affected by the project (in CO nonattainment areas). This criteria is satisfied with respect to existing localized CO violations if it is demonstrated that existing localized CO violations will be eliminated or reduced in severity and number as a result of the project. The demonstration must be performed according to the consultation requirements of §93.105(c)(1)(i) and the methodology requirements of §93.123.*

*40 CFR §93.117, as amended by 62 FR 43810, August 15, 1997*

*Criteria and procedures: Compliance with PM-10 control measures.*

*The FHWA/FTA project must comply with PM-10 control measures in the applicable implementation plan. This criteria is satisfied if the project level conformity determination contains a written commitment from the project sponsor to include in the final plans, specifications, and estimates for the project those control measures (for the purpose of limiting PM-10 emissions from the construction activities and/or normal use and operation associated with the project) that are contained in the applicable implementation plan.*

*40 CFR §93.123, as amended by 62 FR 43815-16, August 15, 1997*

*Procedures for determining localized CO and PM-10 concentrations (hot-spot analysis).*

*(a) CO hot-spot analysis.*

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<sup>2</sup>40 CFR, 62 FR 43798, Aug. 15, 1997.

*(1) The demonstrations required by §93.116 ("Localized CO and PM-10 violations") must be based on quantitative analysis using the applicable air quality models, data bases, and other requirements specified in 40 CFR part 51 Appendix W ("Guideline on Air Quality Models (Revised)" (1988), supplement A (1987) and supplement B (1993), EPA publication no. 450/2-78-027R). These procedures shall be used in the following cases, unless different procedures developed through the interagency consultation process required in §93.105 and approved by the EPA Regional Administrator are used:*

- (i) For projects in or affecting locations, areas, or categories of sites which are identified in the applicable implementation plan as sites of violation or possible violation;*
- (ii) For projects affecting intersections that are at Level-of-Service D, E, or F, or those that will change to Level-of-Service D, E, or F because of increased traffic volumes related to the project;*
- (iii) For any project affecting one or more of the top three intersections in the nonattainment or maintenance area with highest traffic volumes, as identified in the applicable implementation plan; and*
- (iv) For any project affecting one or more of the top three intersections in the nonattainment or maintenance area with the worst level of service, as identified in the applicable implementation plan.*

*(2) In cases other than those described in paragraph (a)(1) of this section, the demonstrations required by §93.116 may be based on either:*

- (i) Quantitative methods that represent reasonable and common professional practice; or*
- (ii) A qualitative consideration of local factors, if this can provide a clear demonstration that the requirements of §93.116 are met.*

*(b) PM-10 hot-spot analysis.*

*(1) The hot-spot demonstration required by §93.116 must be based on quantitative analysis methods for the following types of projects:*

- (i) Projects which are located at sites at which violations have been verified by monitoring;*
- (ii) Projects which are located at sites which have vehicle and roadway emissions and dispersion characteristics that are essentially identical to those of sites with verified violations (including sites near one at which a violation has been monitored); and*
- (iii) New or expanded bus and rail terminals and transfer points which increase the number of diesel vehicles congregating at a single location.*

*(2) Where quantitative analysis methods are not required, the demonstration required by §93.116 may be based on a qualitative consideration of local factors.*

*(3) The identification of the sites described in paragraph (b)(1)(i) and (ii) of this section, and other cases where quantitative methods are appropriate, shall be determined through the interagency consultation process required in §93.105. DOT may choose to make a categorical conformity determination on bus and rail terminals or transfer points based on appropriate modeling of various terminal sizes, configurations, and activity levels.*

*(4) The requirements for quantitative analysis contained in paragraph (b) of this section will not take effect until EPA releases modeling guidance on this subject and announces in the Federal Register that these requirements are in effect.*

*(c) General requirements.*

*(1) Estimated pollutant concentrations must be based on the total emissions burden which may result from the implementation of the project, summed together with future background concentrations. The total concentration must be estimated and analyzed at appropriate receptor*

*locations in the area substantially affected by the project.*

*(2) Hot-spot analysis must include the entire project, and may be performed only after the major design features which will significantly impact concentrations have been identified. The future background concentration should be estimated by multiplying current background by the ratio of future to current traffic and the ratio of future to current emissions factors.*

*(3) Hot-spot analysis assumptions must be consistent with those in the regional emissions analysis for those inputs which are required for both analysis.*

*(4) PM-10 or CO mitigation or control measures shall be assumed in the hot-spot analysis only where there are written commitments from the project sponsor and/or operator to implement such measures, as required by §93.125(a).*

*(5) CO and PM-10 hot-spot analysis are not required to consider construction-related activities which cause temporary increases in emissions. Each site which is affected by construction-related activities shall be considered separately, using established "Guideline" methods. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site.*

*40 CFR §93.125, as amended by 62 FR 43816, August 15, 1997*

*Enforceability of design concept and scope and project level mitigation and control measures.*

*(a) Prior to determining that a transportation project is in conformity, the MPO, other recipient of funds designated under title 23 U.S.C. or the Federal Transit Laws, FHWA, or FTA must obtain from the project sponsor and/or operator written commitments to implement in the construction of the project and operation of the resulting facility or service any project level mitigation or control measures which are identified as conditions for NEPA process completion with respect to local PM-10 or CO impacts. Before a conformity determination is made, written commitments must also be obtained for project level mitigation or control measures which are conditions for making conformity determinations for a transportation plan or TIP and are included in the project design concept and scope which is used in the regional emissions analysis required by §§93.118 ("Motor vehicle emissions budget") and 93.119 ("Emissions reductions in areas without motor vehicle emissions budgets") or used in the project level hot-spot analysis required by §93.116.*

*(b) Project sponsors voluntarily committing to mitigation measures to facilitate positive conformity determinations must comply with the obligations of such commitments.*

*(c) The implementation plan revision required in §51.390 of this chapter shall provide that written commitments to mitigation measures must be obtained prior to a positive conformity determination, and that project sponsors must comply with such commitments.*

*(d) If the MPO or project sponsor believes the mitigation or control measure is no longer necessary for conformity, the project sponsor or operator may be relieved of its obligation to implement the mitigation or control measure if it can demonstrate that the applicable hot-spot requirements of §93.116, emissions budget requirements of §93.118, and emissions reduction requirements of §93.119 are satisfied without the mitigation or control measure, and so notifies the agencies involved in the interagency consultation process required under §93.105. The MPO and DOT must find that the transportation plan/TIP still satisfy the applicable requirements of §§93.118 and/or 93.119 and that the project still satisfies the requirements of §93.116, and therefore that the conformity determinations for the transportation plan, TIP, and project are still valid. This finding is subject to the applicable public consultation requirements in §93.105(e) for conformity determinations for projects.*

*Enforceability - Several commenters (on the January 11, 1993, proposed rulemaking) remarked that project level mitigation or control measures which are relied upon to demonstrate conformity should be enforceable. EPA agreed and included in the final rule a requirement that, before a project may be found to conform, there must be written enforceable commitments from the project sponsor or operator that the necessary project mitigation or control measures will be implemented as part of the construction and operation of the project. Specifically, 40 CFR (§93.125(c)) requires written commitments to those project level mitigation or control measures which are conditions for NEPA process completion with respect to local PM-10 or CO impacts which are included in the project design concept and scope as presented in the analysis supporting the plan, TIP, or project level determination. If the necessary written commitments from the project sponsor or operator are not obtained prior to the project level determination, the project must be considered "not from a conforming plan/TIP."*

#### **ANALYSIS YEARS USED IN PROJECT LEVEL HOT-SPOT ANALYSIS**

A 20-year horizon year and the build year (the year in which the project is open to traffic) are commonly used for analysis years for purposes of demonstrating conformity at the project level as part of a NEPA document (the EPA conformity rule is silent on analysis years for project level hot-spot analysis but EPA provided clarification on this issue in its April 10, 2000 conformity grace period final rule-See Appendix F). Reasonable project alternatives should be shown in the NEPA document for purposes of demonstrating both the "build/no-build" comparison and compliance with the 1-hour (as well as the 8-hour) CO design levels established under the NAAQS. For purposes of modeling of project level CO emissions concentrations, the EPA-approved models are shown within Appendix W of 40 CFR Part 51, also refer to the Section entitled "EPA-approved Models for Project Level Analysis" shown below.

Below is language relating to the horizon used in project-level hot-spot analysis from the preamble from EPA's April 10, 2000 transportation conformity rule amendment on the deletion of the grace period.

*Transportation Conformity Amendment: Deletion of Grace Period: Final Rule, April 10, 2000*

#### **3. What Is Our Policy on the Horizon for Hot-Spot Analysis?**

*As discussed in the proposal to this rule, the conformity rule allows flexibility for areas to decide through the interagency consultation process how to demonstrate that hot-spots are not caused or worsened in any area. Although most areas conduct hot-spot analyses for the year of project completion, many areas also examine other analysis years in the future. For example, some areas do analyze the last year of a currently conforming transportation plan, or another year within the timeframe of that plan, whichever year emissions are highest.*

*In response to comments on the proposal, we acknowledge the need to clarify that the hot-spot analysis must demonstrate that no hot-spots will be caused or worsened during the timeframe of the transportation plan. Nonetheless, we continue to believe that the specific year examined in the hot-spot analysis to make this demonstration should be decided through interagency consultation,*

*as appropriate to the individual area, on a case-by-case basis. This is allowed by our conformity rule. We also reiterate that it is not necessary in all cases to model the last year of the transportation plan in a hot-spot analysis. Rather, the hot-spot analysis should examine the year in which peak emissions are expected, which may not necessarily be the last year of the conforming plan.*

*We believe that it would be useful for §93.116 of the conformity rule to specify that a demonstration that local violations will not be caused or worsened should cover the timeframe of the transportation plan. We agree that without this clarification, it is difficult for implementers to decide which years to examine in order to demonstrate that the conformity requirement is satisfied. For example, some could read the existing requirement to mean that the demonstration regarding local violations must consider only the year of project completion, or in contrast that it consider all future years.*

*Because we need to propose a regulatory clarification before finalizing it, we are not making any changes to §93.116 or §93.123 in this rule. However, we will propose clarifying regulatory text on this issue in an upcoming proposal to amend the conformity rule in response to the March 2, 1999 court decision (Environmental Defense Fund v. EPA, et al., 167 F. 3d 641, D.C. Cir. 1999). That proposal would codify existing EPA guidance, issued in a May 14, 1999 memorandum from Gay MacGregor, Director of the Regional and State Programs Division in the Office of Transportation and Air Quality, to Regional Air Division Directors, "Conformity Guidance on Implementation of March 2, 1999 Conformity Court Decision." Based on the court's decision that guidance outlines our approach for notifying and providing the public an opportunity to participate in the conformity process. It also provides criteria for transportation projects that may proceed during a conformity lapse.*

*In the interim, until this proposal is advanced, we believe our interpretation of §93.116 and §93.123 is consistent with our existing conformity rule, and that selection of the year of peak emissions should continue to be decided through the consultation process. We and DOT will implement the hot-spot requirements of the conformity rule as described in this preamble in all future conformity determinations.*

## **EPA-APPROVED MODELS FOR CO PROJECT LEVEL ANALYSIS**

For purposes of demonstrating CO hot-spot quantitative analysis conformity determinations, analyses must be based on applicable air quality models, data bases, and other requirements specified in 40 CFR part 51, Appendix W (Guideline on Air Quality Models) pursuant to section 93.123(a) of the Transportation Conformity Rule. The Gaussian dispersion models known as CALINE3 and CAL3QHC have been approved for use by EPA in conjunction with the latest emissions factor model<sup>3</sup> In addition, areas that have already been using TEXIN or CALINE4 as the previously established models may continue to use them. For analysis of highways characterized by uninterrupted traffic flows, CALINE3 is recommended by EPA,

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<sup>3</sup> Specific modeling methodologies for intersections are presented in EPA's *Guidelines for Modeling Carbon Monoxide from Roadway Intersections*, Report No. EPA-454/R-92- 005, Nov. 1992.

along with the latest emissions factor model. The recommended model for purposes of analyzing roadway intersections is CAL3QHC.

CAL3QHC combines CALINE3 with a traffic model based on the Highway Capacity Manual for purposes of calculating queues and traffic delays that occur at signalized intersections. Appendix W of the 40 CFR Part 51 has additional information on project level CO models and their uses, including descriptions of input and output data associated with CALINE3.<sup>4</sup>

In addition, another Gaussian dispersion model CAL3QHCR is an enhanced version of CAL3QHC, and includes the same basic Gaussian dispersion algorithms used in the original model. Use of CAL3QHCR is determined on a case-by-case basis, with the input and concurrence of the applicable EPA regional office. Enhancements incorporated into the model include the capability to input up to a year of hourly meteorological data (i.e. wind speed and direction, and stability class). CAL3QHCR can be run for any given day, consecutive days, or season of the year. It computes 1-hr and 8-hr CO, or 24-hour and annual average PM concentrations. Based on both the guidance document published by EPA on the model and anecdotal information from CAL3QHCR users, use of the model can result in significantly lower concentrations than with CAL3QHC. This is primarily due to the fact that actual meteorological data is being input to the model rather than a worst-case assumption of a 1 m/sec wind speed from the same direction for the entire 60-minute averaging period. Use of multiple sets of peak hour traffic data, rather than the single worst peak hour (coupled with a typical persistence factor of 0.7), is also likely to result in lower modeled concentrations.

CAL3QHCR requires substantially more resources to operate than CAL3QHC due to its increased data requirements and complexity. It may also be impractical for many projects due to the unavailability of representative meteorological data. Elevated CO concentrations are a micro scale phenomena that are highly affected by local topography and building effects. The meteorological data input into CAL3QHCR needs to reflect such micro scale conditions. In addition, such input data must come from a monitoring site which has at least three years of meteorological data. This is the shortest period of time acceptable to EPA to ensure that the data input to the model is representative of current conditions.

Obviously, it may not be feasible to incorporate a three-year on-site meteorological monitoring program into the schedule and budget for the environmental assessment of most roadway improvement projects (even the major projects). The alternative is to locate a nearby source of existing meteorological data that is considered representative of the project location. This existing data will most often come from meteorological stations operated by major airports, the National Weather Service, EPA, or State/local air pollution control and other resource agencies. It is strongly recommended that anyone interested in using CAL3QHCR obtain assurances from EPA and other appropriate regulatory agencies that the

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<sup>4</sup> EPA's 1997 *Federal Register* edition of Appendix W (40 CFR Part 51) *Guidance on Air Quality Models* includes CALINE3 and may be found on the Technology Transfer Network (TTN) at the following web site: [http://www.epa.gov/ttn/scram/guidance/guide/appw\\_97.pdf](http://www.epa.gov/ttn/scram/guidance/guide/appw_97.pdf).

meteorological data they intend to use are acceptable before preceding with the analysis. It is also cautioned that it may be very difficult to show that such data are representative of the project's location on a micro scale level, which it must be to produce accurate modeling results for the project. Notwithstanding the above cautions, use of CAL3QHCR may be justified for a limited number of projects, based on the following criteria:

- The project is modeled with CAL3QHC and shows exceedances that cannot be successfully mitigated;
- The project is proposed for a site close to a source of reliable meteorological data (e.g., a major airport); and
- The project is sufficiently large to warrant the additional effort and expense of the refined modeling.

#### **ALTERNATIVES TO MEETING LEVEL OF SERVICE (LOS) D, E, AND F MODELING REQUIREMENTS PURSUANT TO THE TRANSPORTATION CONFORMITY RULE**

The November 1993 transportation conformity rule required the use of the November 1992 *Guideline for Modeling Carbon Monoxide from Roadway Intersections* for projects involving or affecting Level of Service (LOS) D, E, or F intersections within CO nonattainment areas. For purposes of SIP development, the EPA's November 1992 guidance required quantitative modeling for all intersections that are LOS D, E, or F (or that will change to LOS D, E, or F, because of traffic volumes related to a new project in the vicinity).<sup>5</sup> EPA's November 1992 guidance also required modeling of the top three intersections in the area based on highest traffic volume and the top three intersections based on the worst LOS.

For other types of projects, the rule allows either quantitative methods (using reasonable and common professional practice), or qualitative methods if the analysis can provide a clear demonstration that the project does not cause or contribute to any new localized CO violations (or increase the frequency or severity of any existing CO violations) within CO nonattainment and maintenance areas.<sup>6</sup> In addition, alternative screening methods for purposes of CO project level hot-spot analysis may also be employed (after they have been approved by the EPA Regional Administrator) for use as part of the Conformity SIP as discussed below.

In the preamble to the August 15, 1997 transportation conformity rule, EPA stated that commenters supported the clarification to §93.123, "Procedures for determining localized CO and PM-10 concentrations (hot-spot analysis)", which allows the use of procedures other than "Guideline" models in hot-spot analysis if the alternate procedures are developed through the interagency consultation process and are approved by the EPA Regional Administrator. Commenters to the proposal believed that the CO

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<sup>5</sup> 58 FR 62212, Nov. 24, 1993.

<sup>6</sup> 40 CFR §93.123(a)(2), as amended by 62 FR 43815, Aug. 15, 1997.

hot-spot requirements for all projects affecting intersections of LOS D, E, and F was too stringent and burdensome when compared to the realized benefits from such analysis, and others were also concerned and suggested that the requirements were too prescriptive, because LOS D does not automatically indicate an air quality problem. EPA did not make substantial changes to the proposal in order to address these concerns because States do have flexibility that allows areas to develop their own protocols that have different screening mechanisms (however, the use of CO protocols still requires review and approval by the EPA Regional Administrator as indicated above). For additional information pertaining to screening tools, please refer to the "Question and Answers" provided within the following Section.

## QUESTIONS AND ANSWERS

### **What are screening tools (e.g., the California CO protocol), and how may these methodologies be utilized for purposes of estimating project level hot-spot emissions concentrations?**

Screening tools represent general and relatively simple estimation techniques that provide conservative estimates of the air quality impacts of a specific source. Screening tools can show that if a project passes using a conservative set of assumptions, then it would definitely pass a more rigorous test (therefore it could be "screened" out from needing additional analysis). Or if indeed the project fails the conservative test, for example, it could then be screened for more rigorous analysis to show that it does meet the applicable conformity criteria (e.g., for the 1-hour or 8-hour CO NAAQS) being used as a benchmark.

Under the transportation conformity rule, screening tools may be developed and approved by the EPA Regional Administrator as part of the Conformity SIP requirements related to development of "associated methods and assumptions to be used in hot-spot analysis and regional emissions analysis".<sup>7</sup> The obvious benefit of screening tools is that they will eventually assist toward reducing the number of transportation projects requiring more detailed quantitative CO modeling and eliminate the need for more detailed modeling for those sources that clearly will not cause or contribute to ambient concentrations in excess of the NAAQS. Project level CO hot-spot screening tools have been developed for purposes of fulfilling rule requirements in California and are also under development in Pennsylvania and other States. California's CO hot-spot protocol containing screening methodologies has been approved by the EPA, and is the only EPA-approved screening methodology approved for purposes of demonstrating conformity for CO hot-spot analysis purposes.

The State of California, through the California Department of Transportation (Caltrans) developed the CO protocol<sup>8</sup> under 40 CFR §93.105(c)(i), as amended by 62 FR 43805, Aug. 15, 1997, "Interagency consultation procedures" with the assistance of Institute of Transportation Studies (ITS) at U.C. Davis. The California CO protocol incorporates a screening process which determines whether or not

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<sup>7</sup> 40 CFR §93.105(c)(1)(i), as amended by 62 FR 43805, Aug. 15, 1997.

<sup>8</sup> *Transportation Project Level Carbon Monoxide Protocol*, UCD-ITS-RR-97-21, Revised Dec. 1997, Institute of Transportation Studies, University of California at Davis.

transportation projects should proceed ahead toward a project level conformity determination. The decision on whether or not to perform a detailed project level analysis is made based on a simple screening analysis that considers the project's location, nearby receptors, traffic volumes, level of service, and air quality conditions for current and future years. Any failures to meet requirements of the conformity requirements, based on the requirements within the California CO protocol, is then referred to a standing committee involving State and local transportation and air quality officials. However, if impacts are deemed acceptable, then the project is considered satisfactory and no further analysis is needed.

### **What are general steps toward developing an EIS under NEPA for a project level hot-spot analysis for demonstrating conformity?**

The State of Pennsylvania's Department of Transportation (PennDOT) has established a six-step process under their statewide *Project Level Air Quality Handbook* to determine the minimum requirements for meeting hot-spot analysis for environmental impact statements (EIS) under NEPA.<sup>9</sup> The *PennDOT Project Level Air Quality Handbook* discusses these six steps in more detail in Appendix B of their handbook (see Figure 2.5, Section 2-19 of the PennDOT handbook). The six steps toward development of an EIS, as established by PennDOT, are shown below for illustrative purposes only (since each State may have developed its own process for demonstrating NEPA project level conformity, the U.S. DOT does not endorse this approach for all areas) and may be summarized as follows:

#### **Step 1 - Planning and Programming Project Level Air Quality Screening and Benchmark Establishment**

The first step is completed during the planning and programming phases of the project development process. Three specific actions are accomplished in the first step including:

a) determining whether or not the project is actually located within a CO nonattainment or maintenance area based upon the project's geographical location; b) classifying projects as exempt or non-exempt or regionally significant for purposes of conformity to screen projects that are exempt from conformity requirements (regardless of geographic location); and c) establishing a project level benchmark based upon the MPO's long-range transportation plan/TIP regional conformity determination (and the project's current design concept and scope). The project level benchmark, for CO nonattainment and maintenance areas, will be 35 ppm for the 1-hour and 9 ppm for the 8-hour average concentration. The project level air quality benchmark must be documented in the project file to be carried forward into the preliminary design phase. Exempt projects and projects located in attainment areas are removed from further assessment actions.

#### **Step 2 - NEPA Classification and Project Scoping**

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<sup>9</sup> *PennDOT Project Level Air Quality Handbook*, the Pennsylvania Department of Transportation, Bureau of Environmental Quality, Publication No. 321, (Final Draft, Mar. 1996).

Develop the appropriate level of NEPA classification based on type of facility being proposed (e.g. new facility on new alignment, major widening, guardrail project, minor rehabilitation, reconstruction, etc.) and review socio-economic as well as environmental implications. In addition, assess whether or not this project is a transportation control measure (TCM) that is identified in the applicable State implementation plan (SIP). TCMs must be implemented according to their applicable SIP schedules. Projects with adverse air quality impacts should be identified as likely candidates for consideration of mitigation techniques. Review potential mitigation measures, including alternate demand strategies and transportation system management strategies to fulfill the project needs analysis. Review the project level air quality benchmark, and review any potential mitigation measure considered during the scoping process and project needs analysis to ensure that they are documented in the project file prior to proceeding to Step-3. The district project liaison engineer will ensure continuity between the NEPA process and the regional conformity analysis.

### **Step 3 - Assess the Project Level Air Quality Impacts for the Preliminary Alternatives**

The purpose of Step-3 is to evaluate the air quality impacts of the alternatives studied during the preliminary alternatives analysis to ensure they are consistent with original planning assumptions. For each preliminary alternative developed, assess the project level air quality impacts to compare the results with the project level air quality benchmark developed in Step-1. If needed for further mitigation, then include additional air quality mitigation measures and document this in the project file prior to Step-4. For each of the alternatives, a project level air quality assessment includes estimates of VMT, speed changes, and emissions of VOCs, NO<sub>x</sub>, and CO (as applicable). The emissions of VOCs and NO<sub>x</sub> are based on the regional impacts from the project (as part of the MPO's plan/TIP conformity determination), while CO emissions are derived from the localized impacts of the project. If the alternative continues to exceed the air quality benchmark include additional mitigation measures and re-evaluate, and if the VOC and NO<sub>x</sub> air quality regional benchmark cannot be met consult with the MPO's conformity analyst to determine whether or not to continue moving the alternative forward or dismissing the alternative. Each of the alternatives selected for continued study should meet the air quality benchmarks and any mitigation measures considered should be included in the project file before proceeding to Step-4.

### **Step 4 - Quantify the Project Level Air Quality Impacts of the Detailed Alternatives**

Identify each of the detailed alternatives, and analyze each for its air quality impacts. For each of the alternatives, a project level air quality assessment includes emissions of VOCs, NO<sub>x</sub>, and CO. The emissions of VOCs and NO<sub>x</sub> are based upon the regional impacts from the project, while CO is based on the localized impacts of the project. If the project is located in a CO nonattainment area, include the CO impacts for both the regional and local level. The assessments for VOCs and NO<sub>x</sub> should be quantifiable, preferably through network-based transportation and air quality models, off-model techniques or through similar techniques utilized in Step-1 to determine the air quality benchmarks.

For CO, utilize the results of the NEPA localized CO analysis. Compare the air quality impacts to the air quality benchmark, if an alternative exceeds the air quality benchmark or the NAAQS, include possible mitigation measures and re-evaluate. However, if the alternative does not exceed the air quality benchmark or the NAAQS, review the applicability of applying mitigation measures, document the results in the project file, and pass the alternative on for review and move to Step-5.

#### **Step 5 - Selection of the Preferred Alternative**

The purpose of Step-5 is to ensure that the project level air quality considerations are included in selecting the preferred alternative, and the preferred alternative is consistent with the project's initial planning assumptions. Documentation of the air quality mitigation measures are incorporated into the final EIS. During the interdisciplinary project review, consider the air quality impacts of the alternatives before recommending a preferred alternative. Ensure that all air quality impacts and mitigation measures are included in the draft mitigation report. If the preferred alternative is not consistent with the original planning assumptions (in terms of its original design scope and concept), ensure that the conformity analyst in the MPO has cleared the preferred alternative in the final EIS (with the revised design scope and concept) at the regional level. The Record of Decision (ROD) must be prepared before proceeding to Step-6.

#### **Step 6 - Monitor Final Design and Construction**

The intent of Step-6 is to provide continued review and monitoring of a project through final design and construction phases of each project per the EIS's ROD. For a variety of reasons, project design can be modified during final design and/or construction. If air quality mitigation measures are necessary, then include them into the final design and consult with the district air quality coordinator and continue to monitor them through final design and construction to ensure compliance. If any changes have occurred since the EIS's ROD, consult with the district air quality coordinator to ensure that the impacts will not cause a re-evaluation of conformity or violate the ROD.

#### **Please describe a conformity evaluation procedure used for analyzing LOS D, E or F intersection projects for purposes of demonstrating conformity.**

Exhibit 42 provides a flowchart developed by the Puget Sound Regional Council for the Seattle, Washington region for evaluating LOS D, E, or F intersection projects for purposes of demonstrating project level conformity. Please note that other States may have already adopted alternate procedures under the interagency consultation process (however their use is contingent upon EPA approval in the Conformity SIP). In addition, this flowchart diagram is shown in this Guide for demonstration purposes only and does not constitute a law or regulation under the transportation conformity rule or other Federal law or regulation.

**Exhibit 42**  
**Conformity Evaluation Procedure for Intersection Projects**  
**(as adopted by Puget Sound Regional Council)**



